10. The recognizer of Claim 9 wherein said signal source representation and said set of tranformations are determined by applying linear equations 21 and 22 as follows:

$$\sum_{e\in\Omega_e} E_{jke} b_{ke} + F_{jk}\ \mu_{jk} = a_{jk} \quad \forall j \in \Omega_s \tag{21}$$

$$G_{ke} b_{ke} + \sum_{j\in\Omega_s} H_{jke}\ \mu_{jk} = c_{ke} \quad \forall e \in \Omega_e \tag{22}$$

and solve jointly for mean vectors and bias vectors and at the same time calculate the variance using equation 23 as follows:

$$\sum_{jk} = \frac{\sum_{e\in\Omega_e} \sum_{r=1}^{R} \sum_{t=1}^{T_r} \gamma_t^r(j,k,e)\delta_t^r(j,k,e)\delta_t^r(j,e,k)'}{\sum_{e\in\Omega_e} g(j,k,e)} \tag{23}$$

where $\delta_t^r(j,k,e) \underline{\underline{\Delta}} o_t^r - W_{je}\mu_{jk} - b_{ke}$

and using equation 24 as follows:

$$Z_{je}^{(m)} = W_{je}^{(m)} R_{je}(m) \tag{24}$$

to solve for transformation parameters using equations 25 and 26 as follows :

$$Z_{je}^{(m,n)} \underline{\underline{\Delta}} \sum_{k\in\Omega_m} \Sigma_{jk}^{-1(m,m)} \mu_{jk}^{n)} \sum_{r=1}^{R} \sum_{t=1}^{T_r} \gamma_t^r(j,k,e)(o_t^r - b_{ke})^{(m)} \tag{25}$$

$$R_{je}^{(p,n)}(m) \underline{\underline{\Delta}} \sum_{k\in\Omega_m} \Sigma_{jk}^{-1(m,m)} \mu_{jk}^{(p)} \mu_{jk}^{(n)} \sum_{r=1}^{R} \sum_{t=1}^{T_r} \gamma_t^r(j,k,e). \tag{26}$$